Quentin **Caudron**

Data Science Leader · Tacoma, WA

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Accomplished data science leader with 12+ years of experience driving innovation at the intersection of machine learning, the biological sciences, and advanced analytics. Proven track record in building high-performing teams, leading large-scale projects, and delivering transformative insights across industries. Adept at integrating technical rigor with business acumen to optimize cloud infrastructure, scale predictive modeling, and empower data-driven decision-making. Recognized for mentoring talent, breaking down silos, and fostering collaboration across diverse teams.

Skills Snapshot

Leadership & Strategy – Scaling teams, cross-functional collaboration, mentorship, driving data strategy.

Data Science & Machine Learning – Predictive modeling, applied statistics, computer vision, spatial data analysis.

MLOps & Infrastructure – CI/CD, pipelines, model deployment, cost optimization, cloud workflows (AWS, Terraform).

Programming & Tools – Python (NumPy, Pandas, Scikit-learn, CatBoost), Docker, SQL, distributed data processing.

Communication & Collaboration – Technical storytelling, stakeholder engagement, translating complex concepts.

Education

2013	**PhD** Computer Science	University of Warwick, UK
2009	**MSc** Complexity Science (Distinction)	University of Warwick, UK
2008	**BSc** Chemistry and Management (Honors)	University of Warwick, UK

Professional Experience

Sr. Manager, Data Science, Sound Agriculture Feb 2023 – present

Lead the Data Science team in developing cutting-edge tools for agronomic data analysis by integrating satellite imagery, soil data, and weather insights with customer data. Spearhead cloud infrastructure optimization and data strategy to accelerate R&D and drive agronomist decision-making.

- Increased data resolution 1,000x by developing an automated machine learning framework to analyze thousands of data-points per field, reducing yield lift variance by 89% and enabling deeper statistical analysis.
- Reduced AWS costs by 83% while scaling resources and implementing serverless pipelines. Built a self-service web app enabling users to access automated statistical analyses, file parsing, and satellite imagery integration, while implementing backend automations to seamlessly update databases and spreadsheets with processed results.
- Trained scientists in AWS (100% pass rate Certified Cloud Practitioners), fostering cross-functional technical expertise.

Staff Data Scientist, Corteva Agriscience (Granular) July 2021 – Nov 2022

Led large-scale spatial modeling initiatives, using satellite imagery to predict crop yields, planting / harvest dates, and sustainable farming practices. Partnered with stakeholders to integrate predictive modeling into the carbon market ecosystem.

- Improved yield predictive model performance by 21% in RMSE, while reducing time required for prediction by 47%, with feature engineering / encoding, hyperparameter optimization, and model specification.
- Delivered validated models used in the identification of farming practices and backfilling of historical data for determination of carbon credit eligibility.
- Fostered a culture of engineering excellence through CI/CD pipelines, detailed documentation, and ongoing education.

Principal Data Scientist, CBRE Group Apr 2019 – June 2021
Senior Data Scientist, CBRE Group Apr 2018 – Apr 2019
Data Scientist, CBRE Group March 2016 – Apr 2018

Built and led CBRE Build's Data Science team, securing funding for team growth and championing cross-functional collaboration. Developed innovative ML solutions to analyze and act on unstructured data from internal web applications, financial documents, and market databases.

- Modeled COVID-19's financial impact on company revenue using epidemiological and economic modeling, preserving thousands of jobs by reducing C-Suite downsizing estimates.
- Directed a team that built NLP and deep learning tools extracting 100+ attributes from legal documents, streamlining broker workflows and providing corporate insight.
- Founded the Data Science Round Table and ML Journal Club, fostering mentorship and technical collaboration across global teams and contributing to the creation of the Data Science Center of Excellence.

Postdoctoral Researcher, Princeton University March 2013 – March 2016

Created computational methodologies for epidemic prediction and parameter inference in highly stochastic environments. Developed algorithms for biomedical image analysis and hardware for remote sensing of wild mice populations.

- Founded PrincetonPy, connecting 300 members across 20 departments to share Python expertise.
- Created and delivered courses in Python for Scientific Computing, for the Princeton Institute for Computational Science and Engineering, receiving top student feedback each time.

Community & Public Engagement

Founder & Organizer – Advanced Topics in Machine Learning (ATOM), an award-winning monthly meetup exploring cutting-edge ML research. Meetings triweekly to cover new journal papers and methods.

Lead Instructor – Long Island CW Club, teaching advanced-level Morse code to 6,000+ paying members from over 60 countries. Responsible for all 100+ instructors and curriculum design, development, and implementation.

Board Member & Secretary – Puget Sound Repeater Group, growing club activities and representing 501(c)3 members. Instituted Code of Conduct. Run weekly on-air meeting since 2018.

Regular speaker at conferences, including PyData Seattle and ProductCamp Portland.

Certifications

AWS Certified Solutions Architect Dec 2023 – Dec 2026

Technical Proficiencies

Data Science | Machine Learning | Predictive Modeling | Computer Vision | NLP | Algorithms | Statistical Inference | Data Visualization | Python | Pandas | NumPy | SciPy | Matplotlib | Seaborn | Scikit-Learn | PyTorch | CatBoost | XGBoost | GeoPandas | Shapely | Docker | AWS | GCP | Terraform | DevOps | CI/CD | REST APIs | Agile | Data Governance | Strategic Planning | Leadership | Mentorship

Publications

2024 VK Sharma, R Garg, **Q Caudron**. "A systematic literature review on deepfake detection techniques". *Multimedia Tools and Applications*, **2004**.

2023 AE Downie, O Oyesola, RS Barre, **Q Caudron**, YH Chen, EJ Dennis, R Garnier, K Kiwanuka, A Menezes, DJ Navarrete, O Mondragón-Palomino, JB Saunders, CK Tokita, K Zaldana, K Cadwell, P Loke, AL Graham. "Spatiotemporal-social association predicts immunological similarity in rewilded mice". *Science Advances*, **9** (51) eadh8310.

2020 MSY Lau, AD Becker, HM Korevaar, **Q Caudron**, DJ Shaw, CJE Metcalf, ON Bjørnstad, BT Grenfell. "A competing-risks model explains hierarchical spatial coupling of measles epidemics en route to national elimination". *Nature Ecology & Evolution*, **4** (7), 934–939.

2020 CN Davis, TD Hollingsworth, **Q Caudron**, MA Irvine. "The use of mixture density networks in the emulation of complex epidemiological individual-based models". *PLOS Computational Biology*, **16** (3), e1006869.

2018 R Pigeault, **Q Caudron**, A Nicot, A Rivero, S Gandon. "Timing malaria transmission with mosquito fluctuations". *Evolution Letters*, **2** (4), 378–389.

2018 SA Budischak, CB Hansen, **Q Caudron**, R Garnier, TR Kartzinel, I Pelczer, CE Cressler, A van Leeuwen, AL Graham. "Feeding immunity: physiological and behavioral responses to infection and resource limitation". *Frontiers in Immunology*, **8**, 1914.

2017 **Q Caudron**, R Garnier, JG Pilkington, KW Watt, CB Hansen, BT Grenfell, T Aboellail, AL Graham. "Robust extraction of quantitative structural information from high-variance histological images of livers from necropsied Soay sheep". *Royal Society Open Science*, **4** (7), 170111.

2015 **Q Caudron**, AS Mahmud, CJE Metcalf, M Gottfreðsson, C Viboud, AD Cliff, BT Grenfell. "Predictability in a highly stochastic system: final size of measles epidemics in small populations". *Journal of the Royal Society Interface*, **12** (102), 20141125.

2014 TP van Boeckel, S Gandra, A Ashok, **Q Caudron**, BT Grenfell. "Global antibiotic consumption 2000 to 2010: an analysis of national pharmaceutical sales data". *The Lancet Infectious Diseases*, **14** (8), 742–750.

2014 R Garnier, **Q Caudron**, KA Watt, JG Pilkington, JM Pemberton, DH Nussey, AL Graham. "Quantitative liver histology of Soay sheep: nutritional and immunoparasitological causes of organ damage and death in the wild". *Integrative and Comparative Biology*, **54**, E71.

2013 **Q Caudron**, C Lyn-Adams, JAD Aston, BG Frenguelli, KG Moffat. "Quantitative assessment of ommatidial distortion in Drosophila melanogaster". *Drosophila Information Service*, **96**, 136–144.

2012 **Q Caudron**. "Neuronal computation on complex dendritic morphologies". PhD Thesis, *University of Warwick*.

2012 **Q Caudron**, SR Donnelly, SPC Brand, Y Timofeeva. "Computational convergence of the path integral for real dendritic morphologies". *Journal of Mathematical Neuroscience*, **2** (11).

2010 **Q Caudron**, C Lyn-Adams, JAD Aston, BG Frenguelli, KG Moffat. "Quantitative assessment of ommatidial distortion in Drosophila melanogaster: a tool to investigate genetic interactions". *Journal of Neurogenetics*, **24** (1), 87.